

Algebra

Name: _____

Permutations

Date: _____ Period: _____

If 10 children are sitting in their classroom ready to line up for lunch, find the number of permutations for each situation.

1. all 10 children line up
2. 5 children line up
3. 9 children line up
4. 3 children line up

If a shelf is large enough to hold 7 trophies, how many ways can the trophies be arranged if the number of trophies available to choose from are:

5. 7 trophies
6. 10 trophies
7. 11 trophies
8. 30 trophies

Find the number of permutations of the letters in each word.

9. OXFORD
10. ELKTON
11. MARYLAND
12. PENNSYLVANIA

Solve each problem.

13. There are 36 people in the Honor Society. How many ways are there to select a President, Vice President, Secretary, and Treasurer?
14. In Apple iPod® as 15 songs on it. How many ways are there to play 8 of the songs?
15. The Phillies have a 25 player roster. How many ways can a starting lineup of 9 players be created?

Find the number of ways in which each committee can be selected.

1. a committee of 5 people
from a group of 8 people
2. a committee of 2 people
from a group of 16 people
3. a committee of 4 people
from a group of 7 people
4. a committee of 8 people
from a group of 15 people

A restaurant offers entrees with a choice of side dishes. Available are 5 different vegetables, 3 types of salads, and 4 types of bread. In how many ways can the following items be chosen?

5. 2 vegetables, 2 salads, and 2 breads
6. 4 vegetables, 2 salads, and 3 breads
7. 2 vegetables, 3 salads, and 1 bread
8. 1 vegetable, 3 salads, and 2 breads

Solve each problem.

9. A student must work any 9 of the 10 problems on a math quiz. How many different selections of problems can be made?
10. There are 36 members of the Honor Society. How many ways are there to select 5 of the members to represent the group at a conference?
11. A basketball team has 10 players. How many different 5-man teams are possible if each player can play any position?
12. There are 15 boys and 14 girls in Mr. Wooddell's Algebra 1 class. Find the number of ways that Mr. Wooddell can create a team of five students to work on a project. The team consists of 3 boys and 2 girls.